

# BRADSTONE

Manufactured under license by  
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*Wintergreen Ltd. is providing this guide specification to assist in the preparation of specifications for Bradstone Walling Units. Please edit this document to suit the individual project. The specifier shall use this guide specification at their own risk and discretion. Direct questions regarding selection and installation of Bradstone Walling Units to Wintergreen Ltd.*

## **Part 1 General**

### **1.1 SECTION INCLUDES**

- .1 Labour, Products, equipment and services necessary for masonry walling Work in accordance with the Contract Documents.

### **1.2 RELATED WORK**

**SPEC. NOTE: DELETE REFERENCES TO SECTIONS THAT ARE NOT APPLICABLE.**

- .1 Section 04210: Clay Masonry Units.
- .2 Section 04220: Concrete Masonry Units.
- .3 Section 04230: Calcium Silicate Unit Masonry.
- .4 Section 04400: Stone.
- .5 Section 05410: Load-Bearing Metal Studs.
- .6 Section 05500: Metal Fabrications.
- .7 Section 06110: Wood Framing.
- .8 Section 07210: Building Insulation.
- .9 Section 07620: Sheet Metal Flashing and Trim.
- .10 Section 07920: Joint Sealants.

### 1.3 REFERENCES

- .1 ASTM A153/153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- .2 ASTM C207, Standard Specification for Hydrated Lime for Masonry Purposes.
- .3 ASTM A580/A580M, Standard Specification for Stainless Steel Wire.
- .4 CSA A3000, Cementitious Materials Compendium.
- .5 CSA A165 Series, CSA Standards on Concrete Masonry Units.
- .6 CSA A370, Connectors for Masonry.
- .7 CSA A371, Masonry Construction for Buildings.
- .8 CAN3 S304-M, Masonry Design for Building.
- .9 CSA A179, Mortar and Grout for Unit Masonry.

### 1.4 SUBMITTALS

**SPEC. NOTE: MODIFY SUBMITTALS TO SUIT PROJECT.**

- .1 Product data:
  - .1 Submit [duplicate] copies of manufacturer's Product data in accordance with Section 01330 indicating performance criteria, compliance with appropriate reference standard(s), characteristics, transportation, storage, handling and installation requirements.
- .2 Shop drawings:
  - .1 Submit shop drawings in accordance with Section 01330 indicating wall sections and details, special detailing, patterning and locations of control joints.
- .3 Samples:
  - .1 Submit samples in accordance with Section 01300.
  - .2 Submit full size samples of each type and colour of masonry units.
  - .3 Submit 150 mm samples of coloured mortar to match masonry samples.
  - .4 Submit samples of each type of masonry anchors and ties.
  - .5 Submit samples of each type of masonry accessory.

### 1.5 QUALITY ASSURANCE

- .1 Installers qualifications: Perform Work of this Section by a company that has a minimum of [five] years proven experience in installations of a similar size and nature and that is approved by manufacturer.
- .2 Perform masonry walling work in accordance with CSA A370, CSA A371, CAN3-S304-M and requirements of authorities having jurisdiction.

- .3 Perform mortar work in accordance with CSA A179 except where specified otherwise.
- .4 Use same brands of materials and source of aggregate for entire project.
- .5 Submit laboratory test reports certifying compliance of masonry walling units and mortar ingredients with specification requirements.

**SPEC. NOTE: DELETE FOLLOWING IF MOCK-UP IS NOT REQUIRED.**

- .6 Mock-up:
  - .1 Construct a mock-up panel of masonry walling work, 1200 mm wide x 1800 mm high in a location accepted by Consultant.
  - .2 Demonstrate masonry colours, types, textures, use of reinforcement, ties, through-wall flashing, weep holes, jointing, coursing, mortar, bonding, control joints, and workmanship.
  - .3 Mock-up may form part of Work if accepted by Consultant. Mock-ups which do not form part of Work are to be removed from Site during final cleanup, or when directed by Consultant.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store and handle Products in accordance CSA A371, Section 01650, and as specified herein.
- .2 Deliver masonry walling units to the site in approved protective film. Prevent damage to units. Carefully unload masonry walling units to avoid damage to edges and faces.
- .3 Deliver mortar materials in original unbroken and undamaged packages with the maker's name and brand distinctly marked thereon.
- .4 Remove unacceptable materials from Site and replace to acceptance of Consultant.
- .5 Store materials off ground protected from wetting by rain, snow or ground water, or inter-mixture with earth or other materials. Store metal ties and reinforcement to prevent corrosion.
- .6 Do not use salt or calcium-chloride to remove ice from masonry surfaces.

## **1.7 ENVIRONMENTAL REQUIREMENTS**

- .1 Conform to cold weather masonry requirements of CSA A371.
- .2 Do not lay masonry when ambient temperature is at or below 5°C unless temporary protection and heating is maintained until mortar has completely set.
- .3 Supply and install temporary protection and heating for installed, uncured unit masonry when ambient conditions are at, below, or are likely to go below 5°C, until 7 Days after installation.
- .4 Use dry, unfrozen masonry units.
- .5 Maintain temperature of mortar between 5° C and 50° C until use.
- .6 Building on frozen work is prohibited. Remove sections of frozen and damaged masonry before continuing construction of that section.
- .7 Do not use scorched sand, salts or anti-freeze admixtures.

## **Part 2 Products**

### **2.1 ACCEPTABLE MANUFACTURER**

- .1 Manufacturer's of masonry walling approved for use are:
  - .1 Bradstone manufactured under license by Wintergreen Ltd. P.O. Box 1060, Stouffville, Ontario, Canada, L4A 8A1.

### **2.2 MANUFACTURED WALLING UNITS**

- .1 Masonry walling units:
  - .1 Non-load bearing moulded masonry walling units of natural stone aggregates and hydraulic cement conforming to CSA A165 Series.
  - .2 Compressive strength: Minimum 35 MPa at 28 days.
  - .3 Density: 2250-2350 kg/cu.m.
  - .4 Absorption rate: 4% by dry weight in 24 hours.
  - .5 Shrinkage: 0.03% average.
  - .6 Styles: [Masonry Walling] [Traditional Walling] [Terra Walling].
  - .7 Colours: [Cotswold] [Weathered Cotswold] [Weathered York] [North Cerney] [Kingston Grey] [Essex Blend] [Light Grey]

#### **SPEC. NOTE: EDIT FOLLOWING TO SUIT MASONRY WALLING UNIT STYLE.**

- .2 Special shapes: Unless indicated otherwise, supply and install [dressed ends], [jumper block], [infill], [masonry end], [return end], [external & internal angles], and any additional special shapes as indicated.
- .3 Supply masonry units with exposed surfaces free of cracks, chips, blemishes, and broken corners.

### **2.3 MORTAR MATERIALS**

- .1 Mortar: Portland cement/lime to CSA A179, Premixed 1-1-6 Type N, proportion method. [Colour as selected by Consultant.]
- .2 Cement: [Grey] [White] to CSA A3000, Type 10 Portland cement.
- .3 Hydrated lime: ASTM C207, Type S.
- .4 Masonry sand: CSA A179 [white].
- .5 Water: Clean potable, free from deleterious elements and free from salts that can cause efflorescence.
- .6 Mortar colour admixture: Non-staining, non-fading, ground coloured natural aggregates or metallic oxide pigments.

#### **SPEC. NOTE: INCLUDE WATER REPELLENT ADMIXTURE FOR EXTERIOR SINGLE WYTHE CONSTRUCTION.**

- .7 Mortar water repellent admixture: As recommended by the mortar manufacture.

## 2.4 ACCESSORIES

- .1 Masonry flashing: Reinforced SBS modified bitumen, 0.9 mm thick. Adhesive recommended by manufacturer of flashing material.
- .2 Weep hole vents: Purpose-made PVC grilles designed to drain cavities to exterior.

**SPEC. NOTE: AMEND TIES FOR SPECIFIC END USE. SOME AUTHORITIES HAVING JURISDICTION MAY REQUIRE STAINLESS STEEL TIES.**

- .3 Reinforcement: To CSA A370-M:
  - .1 Adjustable veneer anchors: Anchors fabricated from 1.63 mm steel with 4.75 mm steel wire, complete with screws; sized to suit insulation.
  - .2 Dovetail anchors: Adjustable type, anchors fabricated from minimum 2.63 mm steel with 4.75 mm steel wire. Supply dovetail slots for installation as part of concrete Work.
  - .3 Corrugated metal ties: 25 mm x 0.3675 mm thick steel of required length.
  - .4 [Galvanizing: Hot dip galvanize all masonry ties to requirements of ASTM A153 Class B2.]
  - .5 [Stainless Steel: Mill finish, Type 304.]

## 2.5 MORTAR MIXING

- .1 Thoroughly mix mortar ingredients in proper quantities needed for immediate use to requirements of CSA A179. Do not mix different types of mortar in the same mixer unless the mixer is thoroughly cleaned first.
- .2 Use colouring admixture not exceeding 10% of cement content by mass, or integrally coloured masonry cement, to produce coloured mortar to match approved sample.

**SPEC. NOTE: MORTAR WATER REPELLENT ADMIXTURE IS RECOMMENDED IN EXTERIOR SINGLE WYTHE CONSTRUCTION.**

- .3 Add water repellent admixture into mortar at a rate recommended by the manufacturer.
- .4 Use and place mortar in its final position within 2 hours of mixing. Discard mortar not used otherwise.
- .5 Mortars, which have stiffened within mix/use time limit due to moisture evaporation, may be re-tempered by adding enough water as necessary to produce proper workability consistent with the initial rate of absorption of the masonry units.

## **Part 3 Execution**

### 3.1 EXAMINATION

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Engineer. Commencement of Work means acceptance of existing conditions.

### 3.2 PROTECTION

- .1 Keep work dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until work is completed and protected by flashing or other permanent construction.

- .2 Protect work from marking and mortar droppings.
- .3 Temporary brace work during and after erection until permanent lateral support is in place.

### **3.3 WORKMANSHIP**

- .1 Perform masonry Work in accordance with CSA A371.
- .2 Supply and install masonry Work plumb, level and true to line, with vertical joints in alignment and horizontal courses level, uniform, and straight.
- .3 Minimize use of cut masonry units.
- .4 Distribute variations in colour, texture, and shading evenly throughout masonry Work.

### **3.4 CUTTING AND PATCHING**

- .1 Cut and fit masonry to receive work of other Sections, to make work properly come together.
- .2 Cut out neatly for electrical switches, outlet boxes, and other recessed or built-in objects.
- .3 Make cuts straight, clean, and free from uneven edges.

### **3.5 BUILDING IN**

- .1 Prevent displacement of built-in items during construction. Check plumb, location and alignment frequently as work progresses.
- .2 Brace door and window jambs to maintain plumb. Fill spaces between jambs and masonry with mortar.
- .3 Leave 6 mm space below shelf angles.
- .4 Install loose steel lintels and bearing plates. Centre over opening width. Grout under lintels and bearing plates at each jamb with full bed of mortar.

### **3.6 INSTALLATION**

- .1 Lay masonry walling units in full bed of mortar, properly jointed with other work. Buttering corners of joints and deep or excessive furrowing of mortar joints are not permitted.
- .2 Fully bond intersections, and external corners.
- .3 Do not adjust masonry walling units after laying. Where resetting is required, remove; clean units and reset in new mortar.
- .4 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting. Provide specially shaped masonry units required and shown on Drawings.
- .5 Do not use units, which are broken, spoiled or contrasting in appearance. Provide satisfactory blending of tones and textures. Lay masonry units in full bed mortar. Maintain uniform joint widths.

- .6 Remove chipped, cracked, and damaged units in exposed masonry and replace with undamaged units.
- .7 Do not carry any portion of a wall more than 900 mm above any other portion of the wall. Rack down between levels.
- .8 Provide temporary bracing as required by the authorities having jurisdiction for masonry walls 3600 mm or more in height until such time as permanent lateral support for the wall is installed.

**SPEC. NOTE: USE THE FOLLOWING TWO PARAGRAPHS FOR CAVITY WALL CONSTRUCTION.**

- .9 For cavity wall construction, keep cavities free of mortar.
- .10 Install weep hole vents in vertical joints immediately over flashings, in exterior wythes of cavity wall and masonry veneer wall construction, at maximum horizontal spacing of 600 mm oc.

### **3.7 JOINTING**

- .1 Lay all joints 10 mm thick unless otherwise specified or indicated on Drawings.
- .2 Allow joints to set just enough to remove excess water, then tool with 15 mm diameter non-staining tool to provide smooth, compressed, uniformly concave joints. Avoid raked joints.

### **3.8 MASONRY FLASHING**

- .1 Provide flashings under exterior masonry bearing on foundation walls, slabs, shelf angles, and steel angles over openings. Provide flashings under weep hole courses and as indicated.
- .2 In double wythe walls and veneered walls, carry flashings from front edge of masonry, under outer wythe, then up backing not less than 150 mm, and as follows:
  - .1 For masonry backing: Embed flashing 25 mm in joint.
  - .2 For concrete backing: Insert flashing into reglets.
  - .3 For wood frame backing: Staple flashing to walls behind sheathing paper.
  - .4 Lap joints 150 mm and seal with adhesive.

### **3.9 CONTROL JOINTS**

**SPEC. NOTE: SHOW DETAILS AND LOCATIONS OF ALL CONTROL JOINTS ON DRAWINGS.**

- .1 Provide continuous control joints as indicated and if not indicated, at maximum 6000 mm o.c. in continuous walls. Wherever possible, locate control joints at one side of door or window opening.
- .2 Where joint is to receive sealant, rake back joint to a depth of 12 mm neatly tool square and smooth.

### **3.10 INSTALLATION TOLERANCES:**

- .1 Planes true to within 3 mm under 3 m straightedge.
- .2 Plumb within 6 mm in 3 m, or in 6 mm in 6 m at external corners.

- .3 Level within 6 mm in 6 m maximum distance, and 12 mm in 12 m or more.
- .4 Opening sizes within 6 mm of designated dimension.
- .5 With joints to dimensions indicated, but in no case greater than 12 mm.

### **3.11 CLEANING**

- .1 Obtain and follow masonry walling unit manufacturer's written instructions for cleaning of masonry.
- .2 Clean exposed surfaces, removing excess mortar as work progresses. Allow mortar droppings to partially dry then dry brush with a stiff fibre brush.

**END OF SECTION**